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EXAMINER

TODD, GREGORY G

ART UNIT

PAPER NUMBER

2157

DATE MAILED: 12/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/885,290

Applicant(s)

MARKSON ET AL.

Examiner

Gregory G. Todd

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,7-12 and 40-59 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,7-12 and 40-59 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. This is a third office action in response to applicant's amendment and request for continued examination filed, 29 September 2005, of application filed, with the above serial number, on 19 June 2001 in which claims 1, 2, 7-12, and 14-15 have been amended, claims 3, 5, 6, 13, 16, 24-32, and 34-39 are currently cancelled, claims 4, 17-23, and 33 have been previously cancelled, and claims 40-59 have been added. Claims 1-2, 7-12, and 40-59 are therefore pending in the application.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 40 recites the limitation "the control processor" in line 5. There is insufficient antecedent basis for this limitation in the claim.

Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear how the control processor can receive the request in claim 1 and then generate the same request in claim 8.

Claim 2 recites the limitation " the configuring steps " in line 2. There is insufficient antecedent basis for this limitation in the claim.

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Claim 7 recites the limitation " the associating step " in line 6. There is insufficient antecedent basis for this limitation in the claim. This could refer to the steps of claim 7 or claim 1.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-2, 7-10, 14-15, 40-45, 48-55, and 58-59 are rejected under 35 U.S.C. 102(e) as being anticipated by Blumenau et al (hereinafter "Blumenau", 6,421,711).

As per Claim 1, Blumenau teaches a computer-implemented method of allocating storage to a host processor comprising:

a control processor receiving a request to allocate storage to the host processor (at least col. 31, lines 27-39; col. 33, lines 29-66; host requesting allocation of a volume); and

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the control processor associating one or more logical units from among one or more storage units to the host processor by (at least col. 31, lines 9-51; col. 33 line 53 - col. 34 line 50; allocated and assigning LUN);

the control processor configuring a gateway device to map the one or more logical units to the host processor (at least col. 32 line 13 - col. 33 line 17; allocated and assigning LUN);

the control processor configuring the one or more storage units to give the host processor access to the one or more logical units (at least col. 31, lines 9-51; col. 33 line 53 - col. 34 line 39; host or host controller having ability to access volumes);

wherein the control processor is separate from the gateway device, the host processor, and the one or more storage units (at least col. 31, lines 9-51; col. 9, lines 18-43; Fig. 1-4); and

wherein the gateway device is separate from the control processor, the host processor, and the one or more storage units (at least col. 31, lines 9-51; col. 9, lines 18-43; Fig. 1-4).

As per Claim 2. A method as recited in claim 1, wherein:

the configuring steps are performed by the control processor without modification to an operating system of the host processor (at least col. 31, lines 9-51; col. 33 line 53 - col. 34 line 50);

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the gateway device is included in a virtual storage layer (at least col. 32 line 13 - col. 33 line 17; storage subsystem volume / LUN);

the control processor configures the gateway device to map the one or more logical units to a boot port of the host processor (at least col. 32 line 13 - col. 33 line 17; boot from storage subsystem volume);

the control processor is coupled through one or more storage networks to a plurality of storage gateways that includes the gateway device (at least col. 31, lines 9-51; col. 9, lines 18-43; Fig. 1-4; storage volumes); and

the plurality of storage gateways are coupled through the storage networks to the one ore more storage units (at least col. 31, lines 9-51; col. 9, lines 18-43; Fig. 1-4).

As per Claim 7. A method as recited in claim 1, further comprising:

the control processor causing the storage of first information that associates processors to logical units (at least col. 21 line 16 - col. 22 line 21; host to LUN to logical volume);

the control processor causing the storage of second information that associates logical units to storage units (at least col. 21 line 16 - col. 22 line 21; host to LUN to logical volume); and

the associating step further comprises the control processor mapping the one or more logical units from among the one or more storage units to a boot port of the host processor by reconfiguring the gateway device to logically couple the one or more

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logical units to the boot port based on the stored first information and the stored second information (at least col. 32 line 13 - col. 33 line 17; boot from storage subsystem volume).

As per Claim 8. A method as recited in claim 1, further comprising:

the control processor generating the request to allocate storage (at least col. 11, lines 3-30; Fig. 1; col. 31, lines 9-61; col. 29 line 58 - col. 30 line 12);

wherein the control processor is communicatively coupled to a control database (at least col. 11, lines 3-30; Fig. 1; col. 31, lines 9-61; col. 29 line 58 - col. 30 line 12; gatekeeper with configuration database);

wherein the request is directed from the control processor to a storage manager (at least col. 11, lines 3-30; Fig. 1; col. 31, lines 9-61; col. 29 line 58 - col. 30 line 12; gatekeeper with configuration database); and

wherein the storage manager is communicatively coupled to the control processor, the control database, and a storage network that includes the gateway device (at least col. 11, lines 3-30; Fig. 1; col. 31, lines 9-61; col. 29 line 58 - col. 30 line 12; gatekeeper with configuration database).

As per Claim 9. A method as recited in claim 8, further comprising the step of the control processor causing the storage manager to issue instructions to the one or more storage units to give the host processor access to the one or more logical units (at least col. 31, lines 9-51).

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As per Claim 10. A method as recited in claim 1, wherein the associating step further comprises:

the control processor identifying the one or more logical units (LUNs) of the one or more storage units that have a sufficient amount of storage to satisfy the request (at least col. 32 line 13 - col. 34 line 59; col. 9, lines 44-57);

the control processor instructing the gateway device to map the identified LUNs to the small computer system interface (SCSI) port zero of the host processor based on a unique processor identifier (at least col. 32 line 13 - col. 34 line 59; col. 9, lines 44-57); and

the control processor instructing the one or more storage units to give the host processor having the unique host identifier access to the identified LUNs (at least col. 31, lines 9-51).

As per Claim 14. A method as recited in claim 1, wherein the one or more logical units associated with the host processor include at least a first logical unit from a first volume from a first storage unit of the one or more storage units and at least a second logical unit from a second volume from a second storage unit of the one or more storage units (at least Fig. 19; col. 21, lines 16-67).

As per Claim 15. A method as recited in claim 1, wherein the request to allocate storage specifies a parameter selected from the group consisting of an amount of storage to be allocated and a type of storage to be allocated (at least col. 31 line 9 - col. 32 line 12; col. 6 line 64 - col. 7 line 65; col. 9, lines 44-57; col. 32, lines 58-67; col. 34, lines 2-17).



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Claims 40-45, 48-55, and 58-59 do not substantially add or define any additional limitations over claims 1, 2, 7-10, and 14-15 and therefore are rejected for similar reasons.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 11-12, 46-47, and 56-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blumenau in view of Ofer et al (hereinafter "Ofer", 6,260,109).

As per Claim 11. A method as recited in claim 1, wherein the request is a first request, and the associating step further comprises:

the control processor issuing a second request to allocate one or more volumes on one of the one or more storage units (at least col. 31, lines 27-39; col. 33 line 29 - col. 34 line 50);

the control processor causing the volume to be configured for use with the host processor (at least col. 31, lines 9-51);

the control processor issuing first instructions to the one or more storage units to bind the host processor to the volume by giving the host processor access to the volume (at least col. 33 line 29 - col. 34 line 50);

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the control processor issuing second instructions to the gateway device to bind the volume to the host processor (at least col. 33 line 29 - col. 34 line 50; eg. gatekeeper).

Blumenau fails to explicitly teach the volume being concatenated. However, the use and advantages for using such concatenation is well known to one skilled in the art at the time the invention was made as evidenced by the teachings of Ofer (at least Abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Ofer's use of concatenation into Blumenau's system as this would enhance Blumenau's RAID arrays and subsequently allocated logical volumes to be combined together as this is well known in the art in expanding storage.

As per Claim 12. A method as recited in claim 11, further comprising:

the control processor determining that the second instructions have failed to bind the concatenated volume to the host processor (at least col. 33 line 29 - col. 34 line 50);

the control processor issuing third instructions to the one or more storage units to un-bind the host processor from the concatenated volume (at least col. 33 line 29 - col. 34 line 50; removing and deallocating);

the control processor determining that the first instructions have failed to bind the host processor to the volume (at least col. 33 line 29 - col. 34 line 50); and

the control processor issuing fourth instructions to the one or more storage units to break the volume (at least col. 33 line 29 - col. 34 line 50).

Claims 46, 47 and 56-57 do not substantially add or define any additional limitations over claims 11-12 and therefore are rejected for similar reasons.

### ***Response to Arguments***

7. Applicant's arguments filed 29 September 2005 have been fully considered but they are not persuasive.

Applicants argue, in substance, that Blumenau fails to teach the control processor being separate from the gateway device, the host processor, and the one or more storage units; and wherein the gateway device is separate from the control processor, the host processor, and the one or more storage units. Applicants further argue Blumenau does not teach the control processor performing the functionality in claim 1.

Blumenau teaches the amended features of claim 1. Blumenau teaches a gatekeeper facility interacting with hosts for the allocation of free logical storage volumes to specified LUNs, and mapping them accordingly (at least col. 31, lines 9-51; col. 9, lines 18-43; col. 33 line 53 - col. 34 line 59; Fig. 1-4). As such, the gatekeeper facility acts as the 'control processor' to control what gets allocated and the mounting and unmounting of storage to hosts. In addition, management of the configuration information is done anywhere on the network via a separate system administrator (performed at any station), in effect the system administrator is controlling the

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gatekeeper device to perform the functionality desired for a host, thus the gatekeeper acts as an intermediary between hosts for the allocation of storage to hosts processors, thus Blumenau teaches the features of claim 1, as amended.

In response to applicant's argument that Blumenau does not teach the separation of each device, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Here, Blumenau teaches separate host processors, predefined logical volumes functioning as a gatekeeper device, separate LUN's, and storage volumes attached to storage adapters attached to a storage controller. In other words, everything is essentially 'separate', however, the definition of separate becomes foggy when all these devices are connected to each other via either a network or a local bus, etc. For example, the current invention's Fig. 3A shows all the devices connected to each other, wherein the storage gateway is connected yet separate from the storage networks via the virtual storage layer which is connected to the storage units and hosts as well as the control processor. Thus while the control processor is shown as being separate, it is understood in the art that a single processor cannot function on it's own, and it is thus working with the components of the virtual storage gateway in order to function. Thus, as Blumenau teaches the components of Fig. 1, for example, being as separate as that of the current invention's Fig. 3A or 3C, and as Blumenau is capable of performing the intended use, then Blumenau meets the claim.

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Newly cited Sheets et al in addition to previously cited Blickenstaff et al, Aziz et al, Denning et al, Nguyen et al, Nolan et al ('526, '278), Popelka et al, Hickman et al, Tamer et al, and Blumenau '442 are cited for disclosing pertinent information related to the claimed invention. Applicants are requested to consider the prior art reference for relevant teachings when responding to this office action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory G. Todd whose telephone number is (571)272-4011. The examiner can normally be reached on Monday - Friday 9:00am-6:00pm w/ first Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571)272-4001. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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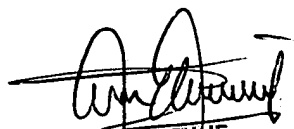
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Gregory Todd



Patent Examiner

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